Implantation of an extravascular implantable cardioverter defibrillator in a pediatric patient: a case report

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Introduction: Implantable cardioverter defibrillator (ICD) is vital for treating life-threatening cardiac arrhythmias and preventing sudden cardiac death. Numerous studies highlight the advantages of ICD therapy in adults, as well as some research on its off-label use in children and adolescents. Although ICD therapy accounts for less than 1% of the pediatric population receiving these devices, it remains a crucial treatment option for young patients.[1] Current guidelines give a class I recommendation for ICD implantation in patients with either ischemic or non-ischemic cardiomyopathy with severely depressed systolic function (left ventricular ejection fraction [LVEF] ≤35% for New York Heart Association [NYHA] Class II or III, ≤30% for NYHA Class I symptoms). At five years from implantation, about 37% of primary prevention patients will have an appropriate device intervention (antitachycardia pacing or shock), against 51% of patients implanted for secondary prevention.

Case report: Goal of this case report is to show that implantation of newly developed extravascular ICD is safe and possible in pediatric patient. As technology advances, there is a lot more possibilities for ICD implantation in sense of access to the heart. At our center last year, we implanted 5 subcutaneous ICDs (3.6% of whole ICD implants) and this year for the first time we implanted extravascular ICD - "Aurora". Patient was 11 years old female with out of hospital cardiac arrest, ventricular fibrillation and reanimation, without any prior anamnestic problems. First plan was to perform classic endovascular ICD implantation but after doing venogram of both sides' conclusion was that endovascular classic lead would not be able to go through veins (left v. subclavian was occluded, right v. subclavian was narrow).

Conclusion: Successful implantation of extravascular ICD was performed and multiple defibrillation threshold test were performed. Patient was discharged from hospital after few days of observation, with all therapy's features turned on. Follow-up is needed to check if there are any inappropriate shocks.

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LITERATURE

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